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ABSTRACT

This article reviews several movements in late 19th and early 20th century art and psychological research that are related to the early Greek method of proportional analysis generally known as the Golden Section. The document discusses the work of the artist Jay Hambidge on the nature of Greek art and design and his theory of dynamic symmetry. Hambidge and his wife, Mary, have been neglected by art historians because their efforts have not been seen as part of a larger development within the history of the modern movement. The view of Plato that states that mathematical objects are intermediate between the ideas and the sensible world, reflect eternal relationships, and are separate from the external world, is contrasted to that of Aristotle that while mathematical objects are intermediate between ideal being and the sensible world, they cannot be deducted from an analysis of being, and have no separate existence. Interrelationships between art and science that can be related to the newest developments in science, computer graphics, and computer assisted design are examined. Relativity is seen as complex not because of the mathematics, but because of its novelty in providing a simpler view of the world. The emphasis of this research is on the continuity of research and ideas in the arts as well as the sciences from the past to the present. The second part of the document discusses the work of Charles Henry in the field of empirical or psychological aesthetics. (DK)

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The Development of a Psychological Aesthetic

Jay Hambidge & Charles Henry

by

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Abstract:

This article reviews several movements in late 19th and early 20 century art and psychological research which are related to an early Greek method of proportional analysis generally known as the Golden Section. It will look at interrelationships of art and science that can be related to the newest developments in science, in computer graphics, and in computer assisted design. The emphasis of this research is upon the continuity of research and ideas in the art as well as the sciences from the past to the present.

While the material in this essay is of a historical nature, it does relate to present concerns in a number of fields in both science and art. It is part of an effort on the part of this writer to connect the past and present and project into the future. It deals therefore with three kinds of time.

Introduction and Background

In doing the preparation for material on the life and work of Jay and Mary Hambidge, I have of necessity gone into many widespread areas of interest. My studies have led me to a review of the following general topics as they would relate to my main task which was the development of the Hambidge story.

a. History of Greek mathematics

b. Systems of ancient geometry

c. Systems of symmetry

d. Symmetry in art and science

e. General development of art and science in the modern movement.

These topics have been explored in various sections of my book, The Way Is Beauty.(1) The scope of that research was to place Jay Hambidge, his life and work, within the mainstream of 20th century art and science. As a part of that main project, I have come up with a number of side issues which will be developed in a collection of separate articles. Part of the purpose of these separate essays on themes relative to the Hambidge project will be to stimulate interest in the work of this long neglected American artist and designer.

Who is Jay Hambidge?

He was largely a self-taught artist and designer who lived in the early years of our century. (Death 1924) For a brief time, 1916-1923, his ideas on art and design were the talk of artistic circles in New York and Boston. He wrote several influential books on the nature of Greek art and design.(2) Today he is probably best remembered for his theory of dynamic symmetry.(3)

He died in 1924 and for the next 50 years his wife Mary Crovatt Hambidge continued with his theoretical interests in Greek art and applied them to her work in fiber art and weaving at her studio and artistic center in Rabun Gap in Georgia.(4)

Jay Hambidge and later is wife Mary always insisted that Greece and "The Greek Way" was essential to their work.(5) Their library at the Center in Rabun Gap, Georgia was well stocked, not only with books on Greek Mathematics but with work on Greek philosophy, literature, mythology, and ancient history.

So what was the nature of "The Greek Way" which so influenced the Hambidge's? I have felt the need to go into a wide variety of these background studies since it was my general aim in this project to present not only a comprehensive double portrait of this neglected and interesting couple; by to account for the basis of the considerable neglect which both suffered during their lifetimes in subsequent history.

I have come to believe that one of the key reasons for this neglect, is that no one has really looked at their efforts as a part of a larger development within the History of the Modern Movement.(6) Their efforts are mainly known by some examples from their writings and some limited drawings of Greek artifacts. There is much more to their joint story.

The Classical Foundation

The philosophical and technical interpretations of Greek mathematics is dominated by the clearly opposed views of Plato and Aristotle. Plato taught that

mathematical objects are intermediate between "the ideas" and the sensible world. The objects reflected eternal relationships of their own, and were separate from the external world which is discovered and not invented.(7)

Aristotle, while believing that mathematical objects were intermediate between "ideal being" and the sensible world; held that they cannot be deducted from an analysis of being and have no separate existence. They are abstracted from the sensible world. We shall see that artistic expression based upon mathematical objects of necessity become abstract.

A synthesis of these two basic world views was undertaken by Euclid whose basic work, The Elements seems to have been an eclectic wedding of Aristotle's method of demonstration with Plato's vision of ultimate reality. He first worked at Alexandria, which as we shall see gave him a contact with Egyptian sources for the specific methods of mathematical analysis of ancient art. Euclid's work remained within the area of the exact sciences for he did not; as had Plato and Aristotle, speculate upon the philosophical basis for his work.

In 1902 Jay Hambidge went to London to study the work of Classical Art in the British Museum and to lecture on some of his ideas at the Royal Society of Architects. His main sources during this early period was the work of Penrose(8) and the ideas of his fellow Canadian Peter Mc Arthur.(9) When he returned from his London adventure, he clearly formulated at least the basic outline for a quest that would assume the remaining 21 years of his life. (21 is a Fibonacci number.)(10)

Any consideration of the several systems for the measurement of ancient art and artifacts needs to carefully consider these important distinctions in Greek philosophy and mathematics. Too often such systems have become overly speculative and Platonic and their findings have been often consigned to mysticism and magic. The some extent, Jay's ideas met with the same fate. The more Aristotlean orientate critics, such as Blake,(11) Carpenter(12) and Dinsmoor(13) all accused Hambidge of being mystical. They dismissed his ideas as being highly speculative and non-scientific.

An examination of the Hambidge Library will reveal that both Jay and Mary Hambidge had a good grounding in Classical art and culture. They knew well the distinctions between the Platonic and the Aristotlean accounts of reality; the world both as actual and ideal. What Jay Hambidge no doubt found in the works of Euclid was a systematic and ordered approach to not only the analysis of works of art but to their creation as well. The early years of the 20th century saw the publication of some of the basic texts and histories of Greek mathematics by Heath and other scholars.(4)

There was in the first quarter of this century a great increase in the interest in ancient civilizations. Many major museum collections were formed and brought to this country. Isodora Duncan and Ruth St. Denis were to become fascinated with the Greek dance styles as a new direction for modern dance.(15) Mary Hambidge would do some costumes of St. Denis in the 1930s and had a friend who would later help to fund her center in Rabun Gap that was interested and involved in the Delphic festivals held at the Jacobs Pillow Dance Center in the 1930s. Mary

Hambidge had plans to hold Greek and Greek type dance and drama festivals at her center in Georgia.

The modern movement in art design, dance, and music were built upon classical foundations. They were not purely avant-garde movements which rejected all of the past, even if a times the artist's own manifestos would seem to imply the rejections of all that had gone the year 1900.

Jay and Mary Hambidge's interest in things Greek and in classical art forms was a part of a much larger movement in the earlier years of our century. The influences from Greece did have considerable influence on the development of dance and drama forms as these were to emerge as a part of the modern movement. All of this was not to imply that this was the renewal of classicism as an artistic style but rather certain classical sources were seen as relevant to the developing modernism. The Art Deco style of the period of the 1920s and 1930s reflected those influences.

This was also true in the musical, dance, and dramatic arts as well. The term classical is somewhat misleading, when one used that term in the visual arts they generally refer to an artistic style reflected of the late 18th century. The Art Deco influences of the 1920s was in fact more Greek and had a more distinctive look of Greek art. The Hambidge's were not wedded to an artistic style but were directly involved in the transmission of Greek art and culture related to developments in this country in the 1920s.

Symmetry vs Dynamic Symmetry

Jay's term dynamic symmetry has caused problems ever since he used it to describe his particular system of design and visual composition. The pursuit of symmetry has been the dominant theme of 20th century science.

The IBM scholar, Clifford Pickover, has in recent years made use of computer technology to explore the relationships of art and mathematics. He has produced dramatic examples of computer generated images which show the nature of symmetry and relationships to the golden section.(16)

Edward Teller (1980) in his series of lectures entitled, "The Pursuit of Simplicity", demonstrated that, in the major fields of physics and chemistry, the use of and the search for symmetry was a desire to achieve synthesis; to get a more simple account of physical phenomenon.(17)

While scientific knowledge has exploded at a geometric ratio, the fundamental pursuit of the key scientific concepts in all fields leads us, not towards greater complexity but to simplicity; to a simplicity within greater understanding. The central idea of symmetry gives the scientific observer some control over vast amounts of perceptual and sensory inputs in terms of patterns, recognition of patterns, proportion, and finally harmony, balance, and rhythm.(18) The Einstein theory of relativity, for example, is complex not because of its' mathematics; but because of the novelty of the idea itself. It provided a more correct and simpler view of the world.

Within the Einstein system, the invariant has the role of a fixed anchor in a sea of relativity. The work relativity is a bit unfortunate because in Einstein's theory the main point is not what is relative but rather what is not; in other words what is invariant and unchanging. Einstein suspected that neither time nor distance were invariant. If one squares the distance light travels between two events and substances the square of the distance between the two events, the results is an invariant.

The trend in the development of 20th century science is towards the simpler and grander, a more aesthetic account for an event or phenomena. Let us now turn to the application of these ideas and directions in math and science to the consideration of a psychological aesthetic.

Charles Henry and a Psychological Aesthetic

Charles Henry, a late 19th century French professor, was partly responsible for the conceptual and methodological foundations for that field which we now call empirical or psychological aesthetics.(19) For Henry, aesthetics was part of a larger system. Aesthetics was the seeking out and implementation of those rhythms which enhance life and expand consciousness. From his point of view, aesthetics is a necessary psychobiological function which furthers the evolution of the organism. All of this should sound a little bit like the Golden Section hypothesis and Berlyne's conception of doing "aesthetics from below".(20) Much of the struggle of the artist, as well as aesthetican in the 20th century, has been to give a form to his cosmological concept. In short, to give all art a human basis, to find in all of nature a basis for art and design.(21)

The basic idea of psychophysic was adapted by Henry from the early work of Gustab Fechner, Elements of Psychophysics and is based on the idea that the magnitude to works of art which could be measured. Thus, began the tradition of empirical studies in the arts. The aesthetics response became the subject matter of the psychologist as well as the philosopher. For Fechner and Henry, the unit of measure was condition by ultimate degrees of sensitivity; a sensitivity which ultimately depends upon the measurer's own subjective experience.

In my essay Jay Hambidge and His Critics, I have shown that one of the main arguments advanced by Carpenter and others against Jay's ideas of dynamic symmetry and the measurement of Greek art was that his results, as well as his system, was too personal; to mystical; not grounded in an objective study of the art alone.(23) This has been the classical argument against the many studies which

have been done in the psychology of art. Henry and Fechner realized very early in their work that the subjective response of the viewer was indeed critical to the perception of the work of art.(24)

Thus, in one bold stroke in 1860, the foundations were layed for the development of quantum theory, the ideas of relativity, and the law of complementarity (Nels Bohr).(25) Certainly, one constant demand which the 20th century artist has made upon the viewer is that they became actively involved in the perceptual-aesthetic encounter. The focus of value or judgement becomes centered in the observer rather than the art object observed.

Psychophysics became a way of understanding reality as an integrated and interrelated whole, Henry called this his "mathematics of the unconscious."(26) In working on my Hambidge study, the question occurred over and over again, why did Jay Hambidge not reflect these larger intellectual considerations in his work? Why was he so separate from the intellectual mainstreams of the early 20th century?

Both Henry and Hambidge were seeking for a mathematical description of beauty. Henry's work as we shall see, relates not only to the mainstream of 20th century science; but also to the arts and the development of the modern movement. One possible explanation is that they used differing mathematical bases for their work. Henry based his ideas on Pythagorean mathematics with a distinctly mystical flavor; whereas Hambidge based his work on Euclid.(27)

Our second clue as to why Jay did not use and know of Henry and his work (although both lived and worked in Paris at the same time) comes from what we know of Jay Hambidge's own background and character. He was educated in

Canada, became a self-taught newspaper artist and illustrator, and went to New York to work as a draftsman. He had very limited contacts with University and scholarly circles and seems to have had some adversion to avant-garde artists, especially those from Europe.[28] In matters of aesthetic taste his was distinctly conservative, and he travelled among conservative artistic groups. His artistic friends were Sloan, Bellows, Henri, Giles, and Ross and not O'Keeffe, Dove, Marin, of DuChamp.

Henry on the other hand taught at the University of Paris, was the holder of the doctoral degree and his circle of artists included Signac, Pisarro, and Seaurt. Charles Henry was expansive in terms of ideas; whereas Hambidge was more narrowly focused and highly convergent towards the pursuit of a single idea. Hence, Hambidge ideas lacking for a wider conceptual base, thus appeared to be somewhat old-fashioned by those who read his work. It looked as if he was too much concerned with the analysis of Greek Art. This is indeed too bad for the contemporary artistic world has been deprived of some useful methods of design and visual composition. Jay Hambidge's great contribution was I think to demonstrate in clearly artistic terms how some of the advanced concepts in science could be directly employed in art and design. He developed a method which artists could use.

The basic psychophysical assumption is that there is no action without an attendant psychaic reaction. Henry was indeed a modern Pythagoras, the world for him was number and number in the Platonic sense was a revelation of a mystic order.

For Pickover and the modern computer artist and scientist all is number, number which reveals order out of chaos; there is a direct linkage between Fechner,

Charles Henry, and Jay Hambidge. For Henry, complexity rather than symmetry and order were the more beautiful; the more complex the line, curve, and color, etc.; the more the aesthetic value. Here, we find the artistic qualities of the Art Nouveau, the visual expression of the symbolists. The key idea in Henry's system was the circle and its' kenetic counterpart the cycle. For Henry, the neo-Pathagorean, the circle and the cycle represented the whole, complete and irreduceable.

This of course was one difference between him and Jay Hambidge who based his work on the square and the range of rectangles which could be derived from the square. Both, however, were on the track of the same basic concept except they expressed it in differing mathematical terms.

Under the influence of Henry, artists such as Signac and Seaurt used his ideas as the basis for their own artistic efforts. They used the golden section as the compositional basis for many paintings and in their paintings can be seen a really good example of the use of dynamic symmetry.(30)

These influences of Henry were taken up later by the French "Golden Section Group"; artists such as Gris were to introduce the conception into cubism. These efforts will end up as a part of the Armory Show which Jay will see in fact write a short article about.(31) There is not evidence in the Hambidge papers that Jay was familiar with Henry or his work. Jay's sources were more intuitive, he came upon these important concepts on his own, he was able to relate them to his own experience as an artist and designer.

Conclusion

The purpose of this essay was to place the work of Jay Hambidge within the larger intellectual traditions of 20th century psychophysics and the psychology of art. I have tried to relate his efforts to larger events within 20th century science out of the firm belief that a final re-evaluation and justification for Jay's ideas will be found in the scientific efforts of our century. Jay deserves his place in the sun!

References

1. H. J. McWhinnie, "The Way is Beauty", unpublished study of the life of Jay and Mary Hambidge.

2. Jay Hambidge, Dynamic Symmetry and the Greek Vase, 1919, Yale Press. Dynamic Symmetry and the Greek Temple, 1924, Yale Press.

3. Jay Hambidge, "Principles of Dynamic Symmetry", 1968, Dover Press.

4. Hambidge Center for the Arts and Sciences was established by Mary Hambidge in 1944 on 880 acres at Rabun Gap Georgia. Today it is an artist center.

5. Edith Hamilton, The Greek Way.

   Later in her life Mary Hambidge would visit Edith Hamilton in Washington, D.C. when she was on one of her frequent trips to New York City.

6. I use the term modern movement to mean the development of art and design from William Morris and the arts and crafts to the Bauhaus.

7. op. cit. Way is Beauty.

8. William Penrose, "Ancient Architecture", 1902, Oxford Press.

   The Hambidge Center has a copy of this book that belonged to Jay Hambidge and has the early drawings and analyses which Jay made over the plates.

9. A Canadian writer, boyhood friend of Jay who worked with Jay on several projects in New York and who went with him to London in 1902. They were seeking the secrets of the ancient in terms of beauty.

10. The Fibonacci sequence 3, 5, 8, 13, 21, 34, etc. are an important aspect of the golden section which underlies Jay's theory of dynamic symmetry.

11. Edwin Blake, "Review of Greek Vase", Art Bulletin, 1922.

    A highly critical review of Jay's book which contributed to Jay's obscruity in the later half of the century.

12. Rhys Carpenter, "Review of the Greek Vase", American Journal of Archeology, 1921.

    Rhys Carpenter was the dean of classical scholarship for the first half of the 20th century. He taught at Bryn Maur College and was the chief critic of Jay's work. More than any other critic single source he was responsible for the critical neglect of Jay's work.

13. William H. Dinsmoor, "The Parthenon", American Journal of Archeology, 1922.

A principle classical architectural scholar who taught at Columbia University and joined the critics of Jay's work after an early encouragement of Jay's efforts.

14. Edwin Heath, Men of Mathematics, 1902.

15. Both Duncan and St. Denis studied early classical dance forms in Greece with a friend of Mary Hambidge, Eva Beth Palmer.

16. Clifford Pickover, unpublished essays on computer art, IBM Watson Center.

17. Edward Teller, "The Pursuit of Simplicity", Nels Bors Essays.

18. Herman Whyle, "Symmetry, Nels Bors Essays.

19. Charles Henry, "Vision", La Vogue, April 1886, Vol. 1, No. 1.

20. D. E. Berlyne, Aethetics and Psychobiology, NY, Wiley, 1972.

21. Clifford Pickover, unpublished essays, computer art and art and beauty, IBM.

22. Gustav Fecher, "Aesthetics", 1876, Leipzig.

23. Conference on Dynamic Symmetry held in July 1985 at the Hambidge Center in Rabun Gap.

24. Charles Henry, "Cercle Chromanque et Sensation de Couleur, La Revue Independante, May 1888, pp. 73-90.

25. Nels Bors, "Essays", 1963.

26. Charles Henry, "Harmonie de Formes et de Couleurs, Paris, 1891.

27. Letters Jay to Mary; Archives of American Art, Washington, D.C.

28. Walter, "Jay Hambidge and Theories of Dynamic Symmetry", 1976, unpublished Ph.D. dissertation, Univ. of Georgia.

29. Jay was a part of the so-called New York Realist or ash can group which was led by Robert Henri. The other major artist group working New York City in the years immediately after WWI was the Stylist Group.

30. Daniel Catton Rich, George Seurat.

31. Unpublished article exists in Hambidge Papers at the Hambidge Center in Rabun Gap.